<<第26届中国飞行器测控学术会议论文 >

图书基本信息

书名：<<第26届中国飞行器测控学术会议论文集>>

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作者：沈荣骏　等主编

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内容概要

《第26届中国飞行器测控学术会议论文集——共享灵活的测控系统》精选并收录了第26届中国飞行器测控学术会议的优秀论文42篇。
内容覆盖了测控总体技术、测量与控制技术、信息传输与处理技术、弹道轨道与导航技术等4个方面，反映了我国航天测控领域的最新科研进展。
本书可供相关领域的研究人员以及工程技术人员阅读参考。

书籍目录

章节摘录

版权页： 插图： 13.3.2.1 Synchronization Technology Signal synchronization is vital, because it directly affects whether subsequentsignals could be processed normally and the acquisition of measurement infor-mation. The synchronization of MC-2D-SS includes the carrier synchronization,symbol timing synchronization and clock synchronization. Carrier synchronizationis to provide a coherent carrier which is the same frequency and phase withreceived signal. Symbol timing synchronization is to determine the beginning andending time of each OFDM symbol, which also mean determining the accurateFFT position of the window. Clock synchronization is to ensure that the receivingterminal and the sending terminal have the same sampling frequency. Amongthem, Carrier and symbol timing synchronization methods are generally dividedinto three types: 1. data aided algorithm: estimation based on the specific training information which was embedded in a transmitted signal. 2. un-data aided algorithm （or blind algorithm）: The synchronization relies entirely on OFDM signal itself or its spectral characteristics. 3. algorithm based on the cyclic prefix: estimation by using the signal's cyclic prefix. In the three algorithms, data aided algorithm is fast, accurate and highly reli-able, which could extend the estimation range by appropriate select samplenumber between training symbols, but the transmission of auxiliary symboloccupies system resources and reduces the utilization efficiency of spectrum resources. Blind synchronization only applies to some cases whose estimation performance is general and complexity is high. The merits of the algorithm based on cyclic prefix are that the calculation amount is small and the algorithm is simple, but the frequency estimation range is small and the time estimation is rougher. In addition, because the received signal is a spread spectrum signal and we know the received signal spread spectrum sequence, so we could adopt the related method to estimate the carrier frequency and symbol time. In aerospace TT&C, because of the high relative velocity between spacecraft and ground station, there exists large Doppler frequency offset, which will destroy the orthogonality between sub-carriers of MC-2D-SS and lead to the mutual interference between the sub-channels. So how to realize the carrier synchroni- zation of MC-2D-SS signal with large Doppler frequency offset is the priority among priorities.

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